INTER-OFFICE COMMUNICATION

TO Karen Hayob, DHMM DATE October 6, 1982

FROM: Russ Stein, Manager, Ground Water Section, Division of Public Water Supply

SUBJECT: Hazardous Impoundment - U.S. Steel Corporation, Lorain

I have reviewed available information for the hazardous waste impoundment (D-2) at reference facility and ground water monitoring data for three quarters. The only available on-site geologic data are illustrations from U.S. Steel's consultant report which show the locations of test borings and a generalized cross-section through the impoundment. The narrative portion of the report and supporting geotechnical data have not been submitted.

Based upon available data, the geologic materials beneath this waste site consist of over 500 feet of relatively impervious shale overlain by 15 to 20 feet of fine-grained valley alluvium adjacent to the Black River. The potential for developing ground water supplies in this area is rather low due to the thick sequence of essentially non-water-bearing shale. Some ground-water storage can be expected in the upper weathered zones of the shale within 30 to 40 feet of the ground surface. However, anticipated well yields would likely average less than one gallon per minute. Overall, this is an extremely poor area for ground water development and no known water wells are located in the vicinity.

Based upon the location of the impoundment in relation to the Black River, it is believed that any potential lagoon leakage would impact shallow ground water beneath the narrow strip of land between the lagoon and the bank of the Black River and would ultimately discharge to the River. Because of the lack of supporting geotechnical data describing the characteristics of the shallow alluvium and the lack of surface water quality monitoring, leakage from the lagoon and subsequent River quality effects are unknown.

The quarterly ground water monitoring results around this impoundment have shown some violations in primary drinking water parameters, specifically, certain heavy metals and fluoride. The highest values were reported in the first quarter samples and may reflect high turbidity levels from improperly developed monitor wells. Subsequent sampling has revealed lower values and fewer violations.

Recommendation:

To adequately evaluate actual or potential ground water contamination at this site, the following additional information should be submitted for review:

1) Dames and Moore hydrogeologic report of area including report narrative and all supporting geotechnical data.

2) Information on water levels including quarterly monitor well static levels, river stage levels, and liquid level in the impoundment.

3) Construction details of all monitor wells.

4) Additional chemical analyses of monitor well samples, particularly ground water quality parameters and pollution indicators as described in OAC 3745-55-92(B).

RBS:rb

cc: Paul Flanigan, Hazardous Materials
cc: Milton Rinehart, Hazardous Materials
cc: Chris Khourey, Northeast District Office